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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,354	12/05/2003	Bjorn Hansson	9342-139	8255

54414 7590 10/13/2006

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EXAMINER

D'AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/729,354		HANSSON ET AL.	
	Examiner		Art Unit	
	Stephen M. D'Agosta		2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 21-34, 36-40 and 42-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-13, 31-34 and 36-38 is/are allowed.
- 6) ☒ Claim(s) 1-4, 21-23, 30 and 39-42 is/are rejected.
- 7) ☒ Claim(s) 5-8, 24-29 and 43-45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Appeal Brief, filed 8-28-2006, with respect to the USC 103 rejection have been fully considered and are persuasive. The rejection has been withdrawn and new prior art has been added.

- The examiner notes that compensating for the effects of round-trip delay in a communication system (eg. if/when requiring precise timing) is well known and can be easily measured, calculated and subtracted out (eg. see Churan Para #169, who is listed as pertinent art but not cited).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 21-22, 39-40 and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over McBurney et al. US 6,473,030 and further in view of Syrjarinne et al. US 6,748,202).

As per **claims 1, 21, and 39**, McBurney teaches a method/server of providing Global Positioning System (GPS) time assistance to a mobile station (title, abstract) comprising:

transmitting a message from a networked GPS time server to a mobile station, the message including GPS referenced time information (Abstract teaches the cell sites and web server provide information to the cell device to aid in reducing satellite search uncertainty. Applicant's admitted prior art, see specification page 1, discloses that time assistance is well known:

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"..It is known to provide GPS time assistance to receivers to reduce the time needed for the receiver to determine a location. In particular, the GPS time assistance can allow the receiver to more accurately predict satellite positions and velocities that can allow the receiver to narrow a frequency search window which can reduce the acquisition time. It is also known to provide GPS time assistance to mobile stations in Global System for Mobile telecommunications (GSM) networks. It is also known to provide GPS time assistance to mobile stations via the Internet using TCP/IP..."); and

transmitting the message to the mobile station (C2, L40-52),

but is silent on indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server.

McBurney does teach that a cell phone with GPS receiver can directly receive information from the GPS satellites and or from cell base stations equipped to send timing information (see figures 1 and 7-10). McBurney teaches that any data sent from a networked server/BTS will have inherent propagation delays (that one skilled would remove):

Embodiments of the present invention can use three different communication links to transfer time and frequency data. One links the GPS reference receivers 112 at the cell-site 102 with the network server 106. A second carries software-API or packet-communication between the cell-phone 114 and GPS receiver 115 in the cell-phone, either directly in the cell-phone or indirectly through the network server. Sharing data directly between the receivers helps improve system performance. A third connection links the network server 106 and cell-phone to both the cell-phone and GPS receiver. The network server 106 can also be located at the cell-site 102 and communicate via the cellular telephony system transceivers 108 and 114.

Time-difference-of-arrival measurements (TDOA), e.g., from a cell-site to a cell-phone, can be used for positioning inside a combined cell-phone and GPS receiver to improve positioning availability and accuracy. Time-stamps sent from the cell-site to the cell-phone can be combined with a priori knowledge of the cell-site position, the cell-site clock bias and the cell-site drift from GPS time. Such time-stamps can be used to transfer time information from the cell-site to the cell-phone with an

accuracy affected only by the radio-signal propagation distance between the cell-phone and the cell-site. (C4, L20 to 44).

Furthermore, Syrjarinne teaches a similar invention whereby he uses transmitted time-stamped frames between mobile and time beacon/BTS to calculate a PVT solution to get the difference in time between receipt of the trigger and the instant to which the PVT applies -- which is similar to a round trip delay or elapsed time. See Abstract, figure and C2, L65 to C4, L44).

The examiner notes that mobile devices with TCP/IP connectivity are well known and therefore ICMP would be supported on these devices as well (Applicant's admitted prior art, spec page 1, teaches TCP/IP connectivity, as does McBurney via the Internet).

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server OR such that the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message, to provide means for the mobile to subtract out the elapsed time for roundtrip transmission and reception of the request and subsequent data OR to provide means for subtracting out the elapsed time for the transmission of the request sent and the data received (for more accurate timing info).

As per **claims 2, 22 and 40**, McBurney teaches claim 1/21/39 **but is silent on** wherein the message comprises an Internet Control Message Protocol message.

McBurney teaches the cell phone connecting to a web server which inherently uses TCP/IP (and which is admitted prior art in the applicant's spec, page 1). Hence ICMP would therefore be a well known message whose delay is calculated as well.

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that the message comprises an Internet Control Message Protocol message, to provide support for industry standard protocols and their messages.

As per **claim 3**, McBurney teaches claim 1 **but is silent on** wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message.

McBurney does teach that a cell phone with GPS receiver can directly receive information from the GPS satellites and or from cell base stations equipped to send timing information (see figures 1 and 7-10). McBurney teaches that any data sent from a networked server/BTS will have inherent propagation delays (that one skilled would remove):

Embodiments of the present invention can use three different communication links to transfer time and frequency data. One links the GPS reference receivers 112 at the cell-site 102 with the network server 106. A second carries software-API or packet-communication between the cell-phone 114 and GPS receiver 115 in the cell-phone, either directly in the cell-phone or indirectly through the network server. Sharing data directly between the receivers helps improve system performance. A third connection links the network server 106 and cell-phone to both the cell-phone and GPS receiver. The network server 106 can also be located at the cell-site 102 and communicate via the cellular telephony system transceivers 108 and 114.

Time-difference-of-arrival measurements (TDOA), e.g., from a cell-site to a cell-phone, can be used for positioning inside a combined cell-phone and GPS receiver to improve positioning availability and accuracy. Time-stamps sent from the cell-site to the cell-phone can be combined with a priori knowledge of the cell-site position, the cell-site clock bias and the cell-site drift from GPS time. Such time-stamps can be used to transfer time information from the cell-site to the cell-phone with an accuracy affected only by the radio-signal propagation distance between the cell-phone and the cell-site. (C4, L20 to 44).

Furthermore, Syrjarinne teaches a similar invention whereby he uses transmitted time-stamped frames between mobile and time beacon/BTS to calculate a PVT solution to get the difference in time between receipt of the trigger and the instant to which the PVT applies -- which is similar to a round trip delay or elapsed time. See Abstract, figure and C2, L65 to C4, L44).

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message, to provide means for subtracting out the elapsed time for the transmission of the request sent and the data received.

As per **claim 4**, McBurney teaches claim 3 **but is silent** wherein the GPS referenced time information further comprises: a mobile station referenced request time at which the mobile station transmitted the request to the networked GPS time server.

McBurney teaches that any data sent from a networked server/BTS will have inherent propagation delays (that one skilled would remove):

Time-stamps sent from the cell-site to the cell-phone can be combined with a priori knowledge of the cell-site position, the cell-site clock bias and the cell-site drift from GPS time. Such time-stamps can be used to transfer time information from the cell-site to the cell-phone with an accuracy affected only by the radio-signal propagation distance between the cell-phone and the cell-site. (C4, L20 to 44).

Furthermore, Syrjarinne teaches a similar invention whereby he uses transmitted time-stamped frames between mobile and time beacon/BTS to calculate a PVT solution to get the difference in time between receipt of the trigger and the instant to which the PVT applies -- which is similar to a round trip delay or elapsed time. See Abstract, figure and C2, L65 to C4, L44).

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that the GPS referenced time information further comprises: a mobile station referenced request time at which the mobile station transmitted the request to the networked GPS time server, to provide means for knowing when the mobile transmitted the message to subtract out elapsed transmission times for request/data messages.

As per **claim 42**, McBurney teaches claim 39 and a computer-readable medium having computer-executable instructions for performing the steps (the network server of figure 1 will have computer instructions as well as the cell phone which uses GPS software).

Claims 23 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over McBurney/Syrjarinne and further in view of Postel, ICMP Protocol Specification, dated 1981.

As per **claim 23**, McBurney teaches claim 21 **but is silent on** wherein the request for GPS time assistance comprises an ICMP time request message and the message comprises an ICMP time response message.

Both McBurney and Syrjarinne disclose GPS time assistance and time-stamping (as per previous claims). Also, both McBurney and applicant's admitted prior art disclose data communications or TCP/IP, which uses ICMP messages.

Postel teaches time-related messages such as Timestamp and Timestamp Reply, which reads on the claim (on the printed document, see page 11).

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that the request for GPS time assistance comprises an ICMP time request message and the message comprises an ICMP time response message, to provide means for "time-stamping" messages and/or having the capability to know when a message was sent and received.

As per **claim 30**, McBurney teaches claim 22 **but is silent on** wherein the ICMP message comprises a PING message.

Both McBurney and applicant's admitted prior art disclose data communications or TCP/IP, which uses ICMP/PING messages.

Postel teaches several different messages including the Echo and Echo reply. The PING message is a well known message supported in wired/wireless networks and provide means to determine if a route/device is available.

It would have been obvious to one skilled in the art at the time of the invention to modify McBurney, such that the ICMP message comprises a PING message, to provide support for well known industry standard protocols, messages and functions.

Allowable Subject Matter

1. **Claims 9-13 and 31-34, 36-38 are allowed.** The prior art of record, alone or in combination, fails to disclose these concepts.
2. **Claims 5-8, 24-29 and 43-45** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

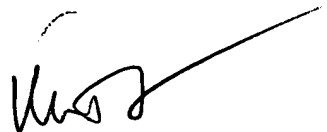
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Fuchs et al. US 6,510,387
2. Soliman US 6,687,501
3. McBurney et al. US 6,473,030
4. Abraham et al. US 2003/0107513
5. Johnson US 5,787,384
6. Churan US 2004/0142660

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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